

DOCKET NO. 8229-014-27



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11/12/02
Muller

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Krishnaswamy RAMKUMAR, ART UNIT: 2813
et al.

SERIAL NO.: 09/975,256

EXAMINER: Hogans, David L.

FILING DATE: October 12, 2001

FOR: METHOD FOR GROWING ULTRA THIN NITRIDED OXIDE

AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Responsive to the outstanding Office Action dated August 5, 2002, entry of the following
is respectfully requested.

IN THE SPECIFICATION

On page 6, at lines 8-17, please replace the paragraph there with the following paragraph
as follows:

A¹ A conventional method for incorporating nitrogen into a gate oxide layer comprises
annealing a preformed oxide layer in the presence of nitrous oxide gas (N₂O). Annealing with
N₂O, however, is generally not effective in incorporating more than 1 to 1.5 wt.% of N in the gate
oxide layer. Additionally, in order to achieve significant nitrogen incorporation using N₂O gas, it
has been found necessary to pre-heat the gas before it enters the furnace. Preheating is usually
conducted by flowing the N₂O gas through a torch that is maintained at a temperature of from
800 °C to 950 °C. A helical torch is typically employed to increase the residence time of the gas
in the torch. The N₂O nitridation anneal itself is typically conducted at temperatures in excess of
900 °C.